

country, one-half mile beyond J. O. Pass, alt. 9000 feet, July 12, 1922, C. Flinn". Kaiser Peak, 10,000 feet, A. L. Grant 1011.

Dodecatheon hendersoni and its varieties usually occur in the foothills of the Sierra Nevada and in the Coast Ranges in the upper Sonoran zone and the lower part of the Transition zone. Altitudinally the group ranges to about 5000 feet where it is displaced by *D. jeffreyi*. It is therefore with some misgiving that I describe this plant from the Canadian and Hudsonian zones as a mere variety of *D. hendersoni*. The plant grows in dense tufts. It produces bulblets very abundantly and reproduces freely by them. Transplanting experiments on this variety have shown it to grow and bloom freely at higher altitudes, but it seems unable to cope with the hot dry conditions that prevail at lower altitudes. In these experiments, plants were taken from Porcupine Flat to Tuolumne Meadows and to Mather. The former locality is 8500 feet altitude and the latter 4700 feet.

#### THE BOTANICAL EXPLORERS OF CALIFORNIA.—IV.

WILLIS LINN JEPSON

George Dexter Butler

In the spring of 1880 the California stage coach, drawn by four horses, south-bound from Ashland, Oregon, carried one day as passengers, two botanists engaged in a botanical reconnaissance of the Pacific Coast with especial reference to the coniferae. One of these men was Dr. George Engelmann of St. Louis, the other Professor Charles Sargent of the Arnold Arboretum at Jamaica Plain in eastern Massachusetts. As the straining horses drew the coach heavily up the steep grade of the Siskiyou Mountains the two travelers conversed on the composition of the forest through which they were passing. Finally the summit was reached and when the trotting horses took the downward slope into Siskiyou County, Dr. Engelmann remarked: "I have written George Butler and I am sure he will meet us at Montague station; that is not far from Yreka." When they arrived at Montague there was no Mr. Butler. The two travelers continued their southward journey into the Great Valley of California.

At that time George D. Butler had been resident in Siskiyou County only a short time. He was born in Morris, Grundy County, Illinois, August 17th, 1850, though his early boyhood belongs to Bureau County. Later he attended the University of Iowa at Iowa City. He studied law, was admitted to the bar in Iowa, but did not begin to practice at once. After the fashion of many young lawyers he took up the teaching profession as a stepping stone to the law. He began to teach in Arkansas and in Indian Territory, developing during this period a botanical correspondence with Dr. George Engelmann of St. Louis, who received from his correspondent, amongst other things, a new *Isoetes*, which he named *Isoetes Butleri*.

Seized by the spirit of adventure Mr. Butler went west to California and followed various occupations such as teaching, running

sawmills and holding county office. In 1896 he was admitted to the bar in California and began the practice of law as his definite profession.

George Butler's passion for botany had always been such that he did not dare trust it. Therefore, on coming to California he determined to let the science of botany entirely alone. If he gave himself to it at all he feared that his proper profession as a lawyer would be largely or too much neglected and that his first obligation, the support and education of his family, would suffer. When the letter

came from his old friend, Dr. Engelmann, he was much puzzled in mind as to what he should do. If he went to the stage junction, there would surely be numerous fascinating field problems suggested to him and he felt doubtful of resisting such deep temptations. The letter, therefore, he deliberately ignored. In this manner the years passed by, practicing law in Yreka, the county seat of Siskiyou County.

In 1906 he chanced to be in a bookshop in Oakland where his eye caught sight of a second-hand copy of Jepson's *Flora*. For a few moments he hesitated and then laid the book down and went away. Still he found himself insistently pondering and considering. As a lawyer he had been successful; his children

had been educated and he was now financially independent. He went back to the shop, bought the book and determined to study and collect the native vegetation of Siskiyou County, an area over three-quarters that of the state of Massachusetts.

He threw himself into his new plans with fervent eagerness. He made collecting trips in every direction from Yreka, east to Goose-nest Mountain, north into the Siskiyoues, west into the Marble Mountain region with all its varied vegetation, its engaging and interesting endemics. Meanwhile he built an herbarium building on his home property in Yreka, purchased floras and worked ardently on his collections. It was his purpose to found a county herbarium which should have a permanent character, a plan undoubtedly of economic value to the agricultural, horticultural and educational interests of the county, but a project which was, perhaps, a little in advance of the times. It was while engaged on these plans that he



GEORGE DEXTER BUTLER

was suddenly carried off by a stroke of apoplexy on October 3, 1910.

His herbarium, after his death, passed as a gift to the University of California. It is by far the most complete collection that has thus far been made of the flora of Siskiyou County. The specimens in it, or the duplicates distributed from it, are frequently cited by A. S. Hitchcock in his grass papers relating to California and by W. L. Jepson in the Flora of California, as well as by other writers. A number of his letters are in the Jepson Correspondence (vol. 6, ms).

Berkeley, November, 1920.

## BIOLOGICAL PECULIARITIES OF CALIFORNIAN FLOWERING PLANTS.—I

WILLIS LINN JEPSON

### Longitudinal fission in the plant body of *Ceanothus cuneatus* Nutt. (Buckbrush).

It was in August, 1890, while on a botanical expedition in the central Sierra Nevada foothills of California, that my attention was first attracted by the growth behavior of *Ceanothus cuneatus*. Shrubs

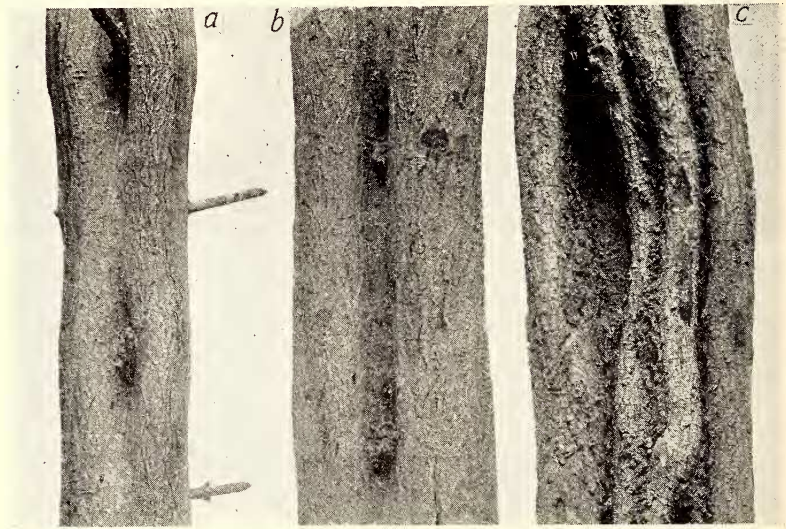


Fig. 1. *CEANOTHUS CUNEATUS* Nutt. *a*, stem 19 years old showing the bases of persisting dead branches and the well-formed lethal channels connecting them; *b*, stem about 30 years old; *c*, stem about 35 years old, showing the interlacing woody strands. Specimens from Kaweah, Sierra Nevada foothills.  $\times\frac{1}{2}$ .